

Title (en)

METHOD OF TREATING LUNG ADENOCARCINOMA

Title (de)

VERFAHREN ZUR BEHANDLUNG EINES LUNGENADENOKARZINOMS

Title (fr)

PROCÉDÉ DE TRAITEMENT DE L'ADÉNOCARCINOME PULMONAIRE

Publication

EP 3906921 A1 20211110 (EN)

Application

EP 21162169 A 20150427

Priority

- US 201461984599 P 20140425
- EP 15721100 A 20150427
- US 2015027800 W 20150427

Abstract (en)

This invention is directed to the treatment of cancer in a patient, particularly a patient with lung adenocarcinoma, and more particularly a patient with SLC34A2-ROS1, CD74-ROS1, or FIG-ROS1 fusion-positive non-small cell lung cancer, with an inhibitor of MET, VEGFR2, and ROS1 which is a compound of Formula I: or a pharmaceutically acceptable salt thereof.

IPC 8 full level

A61K 31/337 (2006.01); **A61K 31/47** (2006.01); **A61K 31/517** (2006.01); **A61K 31/7068** (2006.01); **A61P 35/00** (2006.01)

CPC (source: CN EA EP IL KR US)

A61K 31/337 (2013.01 - EA EP IL KR US); **A61K 31/47** (2013.01 - CN EA EP IL KR US); **A61K 31/517** (2013.01 - EA EP IL KR US); **A61K 31/7068** (2013.01 - EA EP IL KR US); **A61P 11/00** (2018.01 - EA EP); **A61P 35/00** (2018.01 - EA EP); **A61P 43/00** (2018.01 - EA EP); **C12Q 1/6886** (2013.01 - EA US); **A61K 2300/00** (2013.01 - EA IL KR); **C12Q 2600/158** (2013.01 - EA US)

C-Set (source: CN EP US)

CN

A61K 31/47 + A61K 2300/00

EP US

1. **A61K 31/47 + A61K 2300/00**
2. **A61K 31/517 + A61K 2300/00**
3. **A61K 31/7068 + A61K 2300/00**
4. **A61K 31/337 + A61K 2300/00**

Citation (applicant)

- WO 2010093928 A2 20100819 - CELL SIGNALING TECHNOLOGY INC [US], et al
- US 2010143918 A1 20100610 - GUO AILAN [US], et al
- US 2010221737 A1 20100902 - GU TING-LEI [US], et al
- WO 2005030140 A2 20050407 - EXELIXIS INC [US], et al
- US 2010021194 W 20100115
- US 61325095 P
- WO 2008083319 A1 20080710 - TAP PHARMACEUTICAL PROD INC [US], et al
- US 2010021194 W 20100115
- US 4107288 A 19780815 - OPPENHEIM RICHARD CHARLES, et al
- US 5145684 A 19920908 - LIVERSIDGE GARY G [US], et al
- US 5756696 A 19980526 - GRAY JOE W [US], et al
- US 5447841 A 19950905 - GRAY JOE W [US], et al
- US 5776688 A 19980707 - BITTNER MICHAEL L [US], et al
- US 5663319 A 19970902 - BITTNER MICHAEL L [US], et al
- US 7468252 B2 20081223 - COHEN ROBERT L [US], et al
- US 2012024591 W 20120210
- MOK TSWU YLTHONGPRASERT SYANG CHCHU DTSAIJO NSUNPAWERAVONG PHAN BMARGONO BICHINOSE Y: "Gefitinib or carboplatin-paclitaxel in pulmonary adenocarcinoma", N ENGL J MED., vol. 361, no. 10, 3 September 2009 (2009-09-03), pages 947 - 57, XP055073586, DOI: 10.1056/NEJMoa0810699
- MAEMONDO MINOUE AKOBAYASHI KSUGAWARA SOIZUMI SISOBE HGEMMA AHARADA MYOSHIZAWA HKINOSHITA I: "N Engl J Med.", vol. 362, 24 June 2010, NORTH-EAST JAPAN STUDY GROUP, article "Gefitinib or chemotherapy for non-small-cell lung cancer with mutated EGFR", pages: 2380 - 8
- KWAK ELBANG YJCAMIDGE DRSHAW ATSOLOMON BMAKI RGOU SHDEZUBE BJJANNE PACOSTA DB: "Anaplastic lymphoma kinase inhibition in lung cancer", N ENGL J MED, vol. 363, no. 18, 28 October 2010 (2010-10-28), pages 1693 - 703, XP055081495, DOI: 10.1056/NEJMoa1006448
- SHAW ATCAMIDGEENGELMAN JASOLOMON BJKWAK ELCLARK JWSALGIA RSHAPIROBANG YJTAN W: "Clinical activity of crizotinib in advanced non-small cell lung cancer (NSCLC) harboring ROS1 gene rearrangement", J CLIN ONCOL, vol. 30, 2012
- KOHNO TICHIKAWA HTOTOKI YYASUDA KHIRAMOTO MNAMMO TSAKAMOTO HTSUTA KFURUTA KSHIMADA Y: "KIF5B-RET fusions in lung adenocarcinoma", NAT MED., vol. 18, no. 3, 12 February 2012 (2012-02-12), pages 375 - 7, XP055145929, DOI: 10.1038/nm.2644
- TAKEUCHI KSODA MTOGASHI YSUZUKI RAKATA SHATANO SASAKA RHAMANAKA WNINOMIYA HUEHARA H: "RET, ROS1 and ALK fusions in lung cancer", NAT MED, vol. 18, no. 3, 12 February 2012 (2012-02-12), pages 378 - 81, XP055077341, DOI: 10.1038/nm.2658
- LIPSON DCAPELLETTI MYELENKY ROTTO GPARKER AJAROSZ MCURRAN JABALASUBRAMANIAN SBLOOM TBRENNAN KW: "Identification of new ALK and RET gene fusions from colorectal and lung cancer biopsies", NAT MED, vol. 18, no. 3, 12 February 2012 (2012-02-12), pages 382 - 4, XP055145920, DOI: 10.1038/nm.2673
- YAKES FMCHEN JTAN JYAMAGUCHI KSHI YU QIAN FCHU FBENTZIEN FCANCILLA B: "Cabozantinib (XL184), a novel MET and VEGFR2 inhibitor, simultaneously suppresses metastasis, angiogenesis, and tumor growth", MOL CANCER THER, vol. 10, no. 12, December 2011 (2011-12-01), pages 2298 - 308, XP055031202, DOI: 10.1158/1535-7163.MCT-11-0264
- BENTZIEN, F.ZUZOW, M.HEALD, NGIBSON, A.SHI, Y.GOON, L.YU, PENGST, S.ZHANG, W.HUANG, S.: "In vitro and in vivo activity of cabozantinib (XL184), an inhibitor of RET, MET, and VEGFR2, in a model of medullary thyroid cancer", THYROID, 2013, pages 1569 - 1577, XP055495963, DOI: 10.1089/thy.2013.0137

- SENNINO B.ISHIGURO-OONUMA TWEI YNAYLOR RMWILLIAMSON CWBHAGWANDIN VTABMYN SPYOU WKCHAPMAN HACHRISTENSEN JG: "Suppression of tumor invasion and metastasis by concurrent inhibition of c-Met and VEGF signaling in pancreatic neuroendocrine tumors", CANCER DISCOVERY, vol. 2, no. 3, 2012, pages 270 - 87, XP055084027, DOI: 10.1158/2159-8290.CD-11-0240
- BERGETHON KSHAW ATOU SHKATAYAMA RLOVLY CMMCDONALD NTMASSION PPSIWAK-TAPP CGONZALEZ AFANG R: "ROS1 rearrangements define a unique molecular class of lung cancers", J CLIN ONCOL, vol. 30, no. 8, 10 March 2012 (2012-03-10), pages 863 - 70, XP009165222, DOI: 10.1200/JCO.2011.35.6345
- "UniProt", Database accession no. Q78DX7
- GREENMAN ET AL., NATURE, vol. 446, 2007, pages 153 - 158
- CHAREST ET AL., GENES CHROMOSOMES CANCER, vol. 37, 2003, pages 58 - 71
- CHAREST ET AL., PROC. NATL. ACAD. SCI. USA, vol. 100, 2003, pages 916 - 921
- GU ET AL., PLOS ONE, vol. 6, no. 1, 6 January 2011 (2011-01-06), pages e15640
- KURTIS D. DAVIESANH T. LEMARIANA F. THEODOROMARGARET C. SKOKANDARA L. AISNEREAMON M. BERGELUIGI M. TERRACCIANOMATTEO INCARBONEMASS: "Identifying and Targeting ROS1 Gene Fusions in Non-Small Cell Lung Cancer", CLIN CANCER RES., vol. 18, no. 17, 1 September 2012 (2012-09-01), pages 4570 - 4579, XP055176820, DOI: 10.1158/1078-0432.CCR-12-0550
- BOWIE ET AL., SCIENCE, vol. 247
- "NCBI", Database accession no. NP_001020329
- "UniProtKB", Database accession no. Q9HD26-1
- "Remington's Pharmaceutical Sciences", 1990, MACK PUBLISHING COMPANY
- S. M. BERGE ET AL.: "Pharmaceutical Salts", J. PHARM. SCI., vol. 66, 1977, pages 1 - 19, XP002675560, DOI: 10.1002/jps.2600660104
- T. HIGUCHI. STELLA: "A.C.S. Symposium Series, and in Bioreversible Carriers in Drug Design", vol. 14, 1987, AMERICAN PHARMACEUTICAL ASSOCIATION AND PERGAMON PRESS, article "Pro-drugs as Novel Delivery Systems"
- TAKEUCHI KSODA MTOGASHI YSUZUKI RSAKATA SHATANO S ET AL.: "RET, ROS1 and ALKfusions in lung cancer", NAT MED., 2012
- GATTI ET AL., NATURE, vol. 336, 1988, pages 577 - 580
- ELLIOT ET AL., BR J BIOMED SCI 2008, vol. 65, no. 4, 2008, pages 167 - 171
- WIXTED JH ET AL., J BIOL CHEM, 2011
- HWANG JH ET AL., MOL ENDOCRINOL, vol. 17, 2003, pages 1155 - 1166

Citation (search report)

- [X] WO 2014039971 A1 20140313 - EXELIXIS INC [US]
- [X] TAKASHI KOHNO ET AL: "RET fusion gene: Translation to personalized lung cancer therapy", CANCER SCIENCE, vol. 104, no. 11, 1 November 2013 (2013-11-01), pages 1396 - 1400, XP055195151, ISSN: 1347-9032, DOI: 10.1111/cas.12275
- [X] A. DRILON ET AL: "Response to Cabozantinib in Patients with RET Fusion-Positive Lung Adenocarcinomas", CANCER DISCOVERY, vol. 3, no. 6, 26 March 2013 (2013-03-26), pages 630 - 635, XP055195155, ISSN: 2159-8274, DOI: 10.1158/2159-8290.CD-13-0035
- [XP] R. KATAYAMA ET AL: "Cabozantinib Overcomes Crizotinib Resistance in ROS1 Fusion-Positive Cancer", CLINICAL CANCER RESEARCH, vol. 21, no. 1, 28 October 2014 (2014-10-28), pages 166 - 174, XP055195242, ISSN: 1078-0432, DOI: 10.1158/1078-0432.CCR-14-1385
- [XP] ANONYMOUS: "Cabozantinib in Patients With RET Fusion-Positive Advanced Non-Small Cell Lung Cancer and Those With Other Genotypes: ROS1 or NTRK Fusions or Increased MET or AXL Activity - Tabular View - ClinicalTrials.gov", 1 May 2015 (2015-05-01), XP055195262, Retrieved from the Internet <URL:https://clinicaltrials.gov/ct2/show/record/NCT01639508> [retrieved on 20150611]

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

WO 2015164869 A1 20151029; AR 100191 A1 20160914; AU 2015249232 A1 20161110; AU 2015249232 B2 20200625; BR 112016024672 A2 20210202; CA 2946416 A1 20151029; CA 2946416 C 20220719; CN 106488768 A 20170308; DK 3134084 T3 20210503; EA 035223 B1 20200518; EA 201692150 A1 20170228; EP 3134084 A1 20170301; EP 3134084 B1 20210317; EP 3906921 A1 20211110; ES 2874875 T3 20211105; HU E054557 T2 20210928; IL 248408 A0 20161130; IL 248408 B 20220601; JP 2017513908 A 20170601; JP 2019189646 A 20191031; JP 6696908 B2 20200520; KR 102474701 B1 20221205; KR 20160147934 A 20161223; MX 2016013600 A 20170427; NZ 725576 A 20210326; PL 3134084 T3 20210927; PT 3134084 T 20210511; SG 11201608657Q A 20161129; TW 201622723 A 20160701; TW I724988 B 20210421; UA 121655 C2 20200710; US 2017042880 A1 20170216

DOCDB simple family (application)

US 2015027800 W 20150427; AR P150101255 A 20150427; AU 2015249232 A 20150427; BR 112016024672 A 20150427; CA 2946416 A 20150427; CN 201580022580 A 20150427; DK 15721100 T 20150427; EA 201692150 A 20150427; EP 15721100 A 20150427; EP 21162169 A 20150427; ES 15721100 T 20150427; HU E15721100 A 20150427; IL 24840816 A 20161020; JP 2016564236 A 20150427; JP 2019126230 A 20190705; KR 20167033010 A 20150427; MX 2016013600 A 20150427; NZ 72557615 A 20150427; PL 15721100 T 20150427; PT 15721100 T 20150427; SG 11201608657Q A 20150427; TW 104113427 A 20150427; UA A201611881 A 20150427; US 201515305854 A 20150427